Influence of vaccination dose and catch-up campaign on antibody titers against measles and rubella among university students(Digest_要約)

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Original articles: Clinical Investigations

Serological assessment of measles-rubella vaccination catch-up campaign among university students

Running title: Serology of catch-up vaccination

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Number of text pages: 11

Number of reference pages: 5

Number of Tables: 3

Abstract

Background: In Japan, 5000-300,000 persons succumbed to measles every year until 2001. Measles/rubella-combined (MR) vaccination at age 17-18 years (phase 4 MR vaccination: MR-IV) was launched in 2008 in Japan as a measles-rubella catch-up campaign. A serological assessment of this campaign has not been thoroughly performed.

Methods: Titers of anti-measles and anti-rubella immunoglobulin G antibodies, and past medical history including measles and rubella vaccination and infection were obtained from first-year university students in 2008 and 2009, and the immune status against measles and rubella was compared between students at the target MR-IV age (the target age group) and those a year older than the target age (non-target age group).

Results: 186 students were in the target age group and 146 were in the non-target age group. The proportion of students with a history of measles and rubella infection was not significantly different between the 2 groups (8.8% vs. 6.3%, $P = 0.41$ and 11.0% vs. 9.9%, $P=0.75$, respectively). A history of two or more measles and rubella vaccinations was significantly more frequent in the target age group (85.2% and 54.9%, respectively) than in the non-target age group (20.8% and 13.2%, respectively) (both $P < 0.001$). Proportions of seropositives for measles and rubella were also greater in the target age group (98.9% and 97.8%, respectively) than in the non-target age group (91.0% and 87.5%, respectively) (both $P < 0.001$).

Conclusions: The MR-IV catch-up campaign helped achieve herd immunity and will contribute to the elimination of measles and rubella.

Key words: antibody, catch-up campaign, Maternal and Child Health Handbook, measles-rubella vaccination, university students.